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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/645,519	08/22/2003	Tsuguo Watanabe	0505-1232P	8754
2292	7590	12/15/2005	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			KWON, JOHN	
			ART UNIT	PAPER NUMBER
			3747	

DATE MAILED: 12/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/645,519

Applicant(s)

WATANABE ET AL.

Examiner

John T. Kwon

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/03/3/05</u> . | 6) <input type="checkbox"/> Other: ____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koike (US 4 768,486) in view of Nagaishi (US 6 539 785). Koike discloses an upstream fuel injection valve (6) provided upstream from a throttle valve (7), a downstream fuel injection valve (6a) provided downstream from the throttle valve, a detecting means (8) for sensing the throttle valve opening, a means for determining each fuel injection quantity of fuel injection valves on the upstream and downstream sides on the basis of a plurality of parameters including a throttle opening and engine speed. However, Koike does not show the use of a means for detecting the rate of change of the throttle opening in order for stopping fuel injection of the upstream fuel injection valve when the rate of change is larger than a reference rate of change. Nagaishi shows that the provision of a sensor to detect the rate of the throttle opening for controlling the fuel injection is old and well known in the art. Since the prior art references art from the same field of endeavor, the purpose disclosed by Nagaishi would have been recognized in the pertinent art of Koike. Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the device of Koike with the sensor for detecting the rate of change of said throttle opening as taught by Nagaishi. Regarding the claimed proportion of the fuel amount injection between two injectors, it would have been considered to be an obvious

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choice of mechanical design because one skilled in this art is familiar with basic fluid mechanic and normally has the laboratory test facilities. To optimize or select the suitable flow amount would be within the ability of ordinary skilled in this art.

Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toshimitsu (US 4 825 834) in view of Nagaishi (US 6 539 785). Toshimitsu discloses an upstream fuel injection valve (6) provided upstream from a throttle valve (3), a downstream fuel injection valve (6a) provided downstream from the throttle valve, a detecting means (4) for sensing the throttle valve opening, a means for determining each fuel injection quantity of fuel injection valves on the upstream and downstream sides on the basis of a plurality of parameters including a throttle opening and engine speed. However, Toshimitsu does not show the use of a means for detecting the rate of change of the throttle opening in order for stopping fuel injection of the upstream fuel injection valve when the rate of change is larger than a reference rate of change. Nagaishi shows that the provision of a sensor to detect the rate of the throttle opening for controlling the fuel injection is old and well known in the art. Since the prior art references art from the same field of endeavor, the purpose disclosed by Nagaishi would have been recognized in the pertinent art of Toshimitsu. Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the device of Toshimitsu with the sensor for detecting the rate of change of said throttle opening as taught by Nagaishi. Regarding the claimed proportion of the fuel amount injection between two injectors, it would have been considered to be an obvious choice of mechanical design because one skilled in this art is

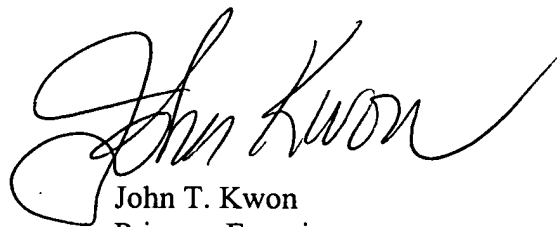
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familiar with basic fluid mechanic and normally has the laboratory test facilities. To optimize or select the suitable flow amount would be within the ability of ordinary skilled in this art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John T. Kwon whose telephone number is (571) 272-4846. The examiner can normally be reached on M-Th.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Yuen can be reached on (571) 272-4856. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "John Kwon", with a stylized, flowing script.

John T. Kwon  
Primary Examiner  
Art Unit 3747

December 2, 2005